CLAIMS

1. A method for loading a dumper with material automatically:

defining a loading site for loading buckets of a material to be loaded from a bucket of a loader on a dump box of a dumper;

5    defining at the loading site a loading area at which the dumper is stopped for loading;

defining an emptying area for the loader at the side of the dumper when the dumper is in the loading area;

moving the loader in a travel direction so that the loader is oriented

10  transverse to the dumper in the emptying area;

controlling with a controller at least part of a loading operation including at least one of emptying of the bucket of the loader and movement of the dumper in the loading area;

moving at least one of the dumper and the loader so that the loader

15  is disposed at different points along a length of the dumper; and

loading different areas of the dump box of the dumper with the loader by causing the loader to empty its bucket into the dump box of the dumper when the at least one of the loader and the dumper is moved so that the loader is disposed at different points along the length of the dumper.

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2. A method as claimed in claim 1, wherein the dumper is stopped for loading at one end of the loading area so that one end of the dump box is in the emptying area of the loader and, after the one end of the dump box is filled, moving the dumper in a longitudinal direction to load another area of the

25  dump box.

3. A method as claimed in claim 1, comprising defining a plurality of stopping points for the loader in the emptying area in the travel direction, stopping the loader at the different stopping points, and, when the loader is

30  stopped at the different stopping points, loading different transverse points of the dump box.

4. A method as claimed in claim 1, comprising measuing a height of a load on the dump box at a point being loaded with a measuring device and

35  controlling loading based on a measured load height.

5. A method as claimed in claim 1, comprising measuring a shape of a load in the dump box and controlling loading based on the measured shape.

6. A method as claimed in claim 4, wherein the measuring device
5   confirms that the dumper is present and correctly located in the loading area before the loader is caused to empty its bucket.

7. A method as claimed in claim 1, comprising measuring a weight of a load on the dump box and a location of the load relative to the dump box
10   and controlling loading based on the weight and the location of the load.

8. A method as claimed in claim 1, wherein the loading area of the dumper is located lower than the emptying area of the loader.

15   9. A method as claimed in claim 8, wherein material emptied from the bucket is guided to the dump box by a downwards-convergent guide edge above the dump box.

10. A method as claimed in claim 1, wherein the loader is guided by
20   the controller to automatically fetch material from a predefined area, to automatically run between the predefined area and the emptying area, and to automatically empty the material from the bucket to the dumper.

11. A method as claimed in claim 1, wherein the controller guides
25   the dumper to automatically run between the loading site and an unloading site and to automatically unload on the unloading site.

12. An apparatus for implementing the method of claim 1, wherein the apparatus comprises:
30   the controller, the controller being adapted to guide the dumper at least during loading;
means controlled by the controller for stopping the dumper in the loading area in a predefined position so that material transported by the loader can be emptied on the dump box in a first area along a length of the dumper
35   and for moving the at least one of the dumper and the loader so that the loader can empty material onto another area of the dump box; and
the controller including means for at least one of automatically guiding the loader in the emptying area to a suitable emptying point for loading and for automatically guiding the movement of the dumper in its loading area.

13. An apparatus as claimed in claim 12, comprising at least one measuring device for measuring a height of a load on the dump box and for controlling the loading based on the measured load height.

5    14. An apparatus as claimed in claim 12, comprising at least one measuring device for measuring a shape of the load on the dump box and for controlling the loading based the measured load shape.

15. An apparatus as claimed in claim 12, comprising at least one
10    measuring device arranged to detect a presence of the dumper and a location of the dumper in the loading area before the loader is permitted to empty its bucket.

16. An apparatus as claimed in claim 12, comprising a measuring
15    device for measuring a weight and a location of the load on the dump box and for controlling the loading based on the weight and the location of the load.

17. An apparatus as claimed in claim 12, wherein the controller is adapted to automatically guiding the loader in a transverse direction of the
20    dumper based on at least one load parameter.

18. An apparatus as claimed in claim 12, wherein the controller is adapted to automatically move the dumper in the longitudinal direction based on at least one load parameter.
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19. An apparatus as claimed in claim 12, wherein the controller is adapted to move the emptying area of the loader in the longitudinal direction of the dumper according to at least one load parameter and is adapted to automatically guide a loading table to the emptying area.
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20. An apparatus as claimed in claim 12, wherein the controller  is adapted to control movement of the loader to automatically fetch material from a predefined loading area, to automatically guide the loader to move between the predefinined loading area and the emptying area and to automatically
35    empty the material from the loader bucket to the dumper.

21. An apparatus as claimed in claim 12, wherein the controller is adapted to guide the dumper to automatically move between its loading area

and an unloading area and to automatically empty the load in the unloading area.